

REMARKS

Claims 1-33, 48-56, and 58 are pending in this application.

In the Office Action dated August 25, 2004, the Examiner rejected claims 1-33, 48-56 and 58. In particular, claims 1-8, 10, 48, 51-54, and 58 were rejected under 35 U.S.C. 102(e) as being anticipated by Benson. In addition, claims 9 and 50 were rejected under 35 U.S.C. 103(a) as being unpatentable over Benson in view of either one of Meyer or Knight. Also, claims 11-25, 27-33, 49, 55, and 56 were rejected under 35 U.S.C. 103(a) as being unpatentable over Benson in view of either one of Nakamura or Poulsen. Finally, claim 26 was rejected under 35 U.S.C. 103(a) as being unpatentable over Benson, Nakamura, and Poulsen in view of either one of Meyer or Knight.

Applicants would like to thank the Examiner for conducting an interview to discuss the pending claims on November 17, 2004, as summarized in the Interview Summary issued on that date.

As indicated above, Applicants have amended claims 1, 7, 10, 21, 27, 29, 48, and 58 and canceled claims 6, 9, 23, 26, 50.

Rejection of Claims 1-5, 7-8, 10, 48, 51-54, and 58 Under 102(e)

As discussed during the interview, Applicants respectfully disagree with the Examiner's conclusion that Benson anticipates claims 1-5, 7-8, 10, 48, 51-54, and 58. In order to anticipate these claims, Benson must disclose each and every element of the rejected claims. MPEP § 2131 (8th Ed., revised May 2004). Because Benson does not disclose every element of these claims, Applicants respectfully request that the Examiner withdraw these rejections.

All of the rejected claims require a "filament winding apparatus." Benson, however, does not disclose a filament winding apparatus. Rather, Benson discloses only a fiber placement

machine. As is well known in the art and as is described in Benson, fiber placement machines differ significantly from filament winding apparatuses. Fiber placement machines utilize a compaction roller to press fiber tows onto a mandrel. (Col. 2, l. 14-16). Thus, there is contact between the compaction roller and the mandrel. While a fiber placement machine allows for the application of fibers to more complex shapes, it is also a slower configuration. In contrast, a filament winding apparatus applies tows of fiber to a mandrel without contact between the fiber bundle application section and the mandrel. Thus, the application speed of a filament winding apparatus can be significantly greater than that achieved by a fiber placement machine.

Further, Benson specifically states that filament winding apparatuses and fiber placement machines differ. As noted by Benson:

Fiber placement, although related to both filament winding and tape laying processes, is more versatile than either of them because it may be used to lay down tows of fiber on flat or symmetrical shapes as well as on complex compound contours that previously required manual darting and fitting of the material onto the shape. It uses a compaction roller like tape laying, but uses material in the form of prepreg tows instead of tape. It forms its own tape or band from the tows. The reason that fiber placement can move on non-geodesic paths is that each tow can feed at a different rate, allowing the outside tow on a curve to feed more rapidly than the inside tow. The tows between the inside and outside tows feed at progressively faster rates from the inside to the outside, thus permitting the steering of the fiber into curved or non-geodesic paths.

(Col. 2, l. 10-23). Therefore, Benson specifically highlights the differences between the two devices and distinguishes his device from a “filament winding apparatus.”

Finally, Applicants have now amended the claims to indicate that the spreading or rod assembly of the winding head comprises “at least two curved rods.” Benson does not disclose curved rods to spread each fiber as is now required by the claims. Therefore, since Benson does

not disclose every element of Applicants' claims as amended, Applicants respectfully request that the Examiner withdraw the rejection of claims 1-5, 7-8, 10, 48, 51-54, and 58.

Rejection of Claims 11-22, 24-25, 27-33, 49, 55, and 56 Under 103(a)

Applicants also respectfully disagree with the Examiner's conclusion that claims 11-22, 24-25, 27, 28-33, 49, 55, and 56 are obvious over Benson, in view of Nakamura or Poulson. To establish a *prima facie* case of obviousness, the MPEP requires that the Examiner must demonstrate (1) some suggestion or motivation to modify the reference or combine reference teachings; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. MPEP § 2142 (8th Ed., revised May 2004). Because the a *prima facie* showing of obviousness has not been demonstrated, Applicants respectfully request that the Examiner withdraw these rejections.

For the reasons discussed above, Benson does not disclose a "filament winding apparatus" or a winding head comprising a spreading assembly with "at least two curved rods." Moreover, Benson teaches away from the use of a "filament winding apparatus," instead teaching the use of a differing fiber placement machine. (Col. 1-2). Specifically, Benson expressly limits his invention to fiber placement machines because, in his view, they are "more versatile" than filament winding apparatuses. (Col. 2, l. 10-12). Benson also does not teach the use of a spreading assembly with "at least two curved rods." Moreover, neither Nakamura nor Poulson disclose a spreading assembly with "at least two curved rods." Therefore, the rejection of claims 11-22, 24-25, 27-33, 49, 55, and 56 over Benson, Nakamura, and Poulson is improper because these references do not teach or suggest all the claim limitations.

In addition, claims 11-14, 21-22, 24-25, 27, 28-33, and 49 all require either a "resin applicator to apply resin to the fiber bundle" or "second applying component configured to apply

resin to the fiber bundle.” As noted above, Benson teaches only the use of prepreg fibers. Since these fibers already include resin, combining the wet lay-up methods of Nakamura and Poulson with the apparatus of Benson would be illogical. Thus to implement the combination of Benson with either Nakamura or Poulson, it would require extensive modification of the Benson device, thereby changing the principle of operation of that device. When a proposed combination of the prior art would change the principle of operation of the prior art, the teachings of the references are not sufficient to render the claims *prima facie* obvious. MPEP § 2143.01. Thus, the rejection of claims 11-14, 21-25, 27, 28-33, and 49 is improper.

The rejection of claims 13 and 29 is also improper because Benson does not teach a resin container, “wherein the resin container is heated,” as required by those claims. As discussed above, the fibers of Benson are pre-impregnated with resin. Therefore, Benson provides no disclosure of the application of resin at all, let alone a heated resin container. The portion of Benson relied on by the Examiner discloses only the fact that increases in temperature will increase the tackiness of a pre-impregnated tows, which is a feature that Benson notes “detracts from the functions of the delivery heads.” (Col. 2, l. 53-55). Thus, Benson actually discourages heating of the pre-impregnated tows. Therefore, this rejection should be withdrawn.

The rejection of claims 14 and 30 is also improper because the Examiner does not point to any teaching in Paulson of a “resin metering drum to instruct the resin container to provide a measured quantity of resin to the resin dispenser.” Although the Examiner cites Paulson, the Examiner points to no reference in Paulsen of a resin metering drum. Paulsen discloses only a piping system that applies resin to the mandrel. Therefore, this rejection should also be withdrawn.

Finally, the rejection of claims 20, 33, and 56 is also improper because the Examiner does not point to any reference disclosing the use of a fiber gauge tow of less than 0.0038 inches. Rather, the Examiner states that this point is "clear" without any supporting evidence. This is insufficient to establish a *prima facie* case of obviousness. Therefore, this rejection should also be withdrawn.

Rejection of Claims 6, 9, 23, 26, and 50

Claims 6, 9, 23, 26 and 50 have now been canceled in light of the amendments to the remaining claims.

Claim 29

Claim 29 has been amended to make clear that it is dependent on claim 28 as originally intended by the Applicants. This amendment is not intended to alter the scope of claim 29 in any way.

Conclusion


In view of the foregoing amendments and remarks, Applicants respectfully request the reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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